LG Hausys

HI-MACS® is ETA (European Technical Approval) certified.

OUT NOW!
FACADES MADE OF HI-MACS®.

NG

THE NEW GENERATION.
Inspired by Architecture.

HI-MACS®
Natural Acrylic Stone™

The organic architectural design of the Leonardo Glass Cube requires a material which allows curved, flowing contours without losing any of its functionality and load-bearing capacity.

Exposed to the elements for many years, the HI-MACS® facade colour range has withstood humidity and UV radiation without any detrimentral consequences.

Design: 3deluxe, Fabrication: Rosskopf & Partner AG, All images on this page: Photographed by Emanuel Raab

LET'S GO OUTSIDE.

If you have worked with HI-MACS® materials before, you will know the effect: your own ideas and the creative material inspire each other producing further, even better ideas. HI-MACS® can give shape and form to virtually any of your design ideas.
New dimensions are opening up now: Just take the countless advantages offered by HI-MACS® outside and use the material of possibilities to design facades as well.

It is the outdoor applications in particular where HI-MACS® scores with its outstanding properties:

Easy thermoforming
Organic-curved, three-dimensional facade architecture thanks to the thermal moulding capacity of the material.

Translucent qualities
Spectacular light and surface effects are achieved by milling and backlighting.

Advantageous outdoor properties
The HI-MACS® facade colour range withstands humidity, UV radiation or variations in temperature thanks to homogeneous, non-porous material and other advantageous properties.

A durable material
Easy to clean and maintain, the perfect function and visual effect will last for many years (even damage caused by graffiti can be removed without any trace).

HI-MACS® offers clear advantages, even when compared with other mineral materials:

Outdoor applications
The HI-MACS®-FR-quality has been tailor-made for outdoor applications and its resistance to UV radiation surpasses that of any other solid surface.

Fire rating test
The HI-MACS®-FR-quality passed the fire rating test with far better results than any of the other mineral materials: The achieved SBI test according to EN-13501-1 is the impressive proof of this.

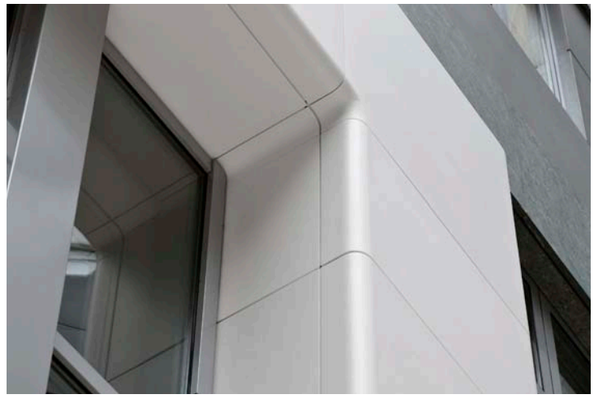
HI-MACS® facade colour range
The other 12 colours of the outdoor range, too, achieved good results in terms of fire rating. Their excellent results: B1, which allows application in almost every relevant area.

The entire load-bearing steel construction is coated with HI-MACS®, creating a light and almost floating visual impression.

Customers of this office complex were enthusiastic about the animated snowflakes visible on its facade.

Photographed by Volker Mai

The most important particularity of using HI-MACS® on a facade is its ability to create round corners.



Photographed by Andreas Mikutta

HI-MACS® TURNS THE NIGHT INTO DAY.

This impressive gate can be seen at a busy road in the heart of Berlin. The exterior of the gate is entirely cladded with HI-MACS® material. The material is carried on all the way to the interior and is kept in a stylish white throughout.

Photographed by Volker Mai

While the robust and effectively staged surface dominates the facade outside, it is the many small fabrication details inside which offer the arguments in favour of HI-MACS®: both the address and a clear pattern of dots create an impressive effect.

But the special highlight can only be seen at night: the entire gate is fitted with an LED technology which is invisible during the day. Graphic patterns or letters can be projected on the HI-MACS® surface, turning the straight installation into a dynamic stage for lighting design.

Effectively animated outside, inside a clear design of dots and letters milled out by using the CNC technology.

Photographed by Andreas Mikutta

During the day, the lighting technology is invisibly hidden and protected by the robust HI-MACS® surface.

Photographed by Andreas Mikutta

Design: neo systems architects, Fabrication: Rosskopf & Partner AG, Engineering: 5D Engineering GmbH

CONVINCING INSIDE AS WELL AS OUTSIDE.

Design: SchröderArchitekten, Fabrication: Kiebitzberg Möbelwerkstätten – Klöpfer Surfaces,
Photographed by Dipl. Ing. Arch. F. Aussieker

All of a sudden a building has haptic qualities.

These white elements create a uniform impression: all window framings and some wall elements are made from HI-MACS®, increasing the value of the building considerably.

Especially the bottom section of the facade is within reach of passers-by: wonderful if spectators "look with their hands" being able to feel the perfect touch of the material.

Looking at it from the outside: sheer design competence.

The ZARA shop in London: the fabrication and design of the facade are meant to convey the design standards of this young Spanish brand name. Thanks to its futuristic linear design which is both solid and avant-garde, the HI-MACS® surface is totally captivating.

Design: Zara Estudio, Fabrication: Grupo Candido Hermida, Photographed by Mark Wilson Photography

CHOOSE THE OUTDOOR EXPERT.

In Europe, for good reason, there are strict regulations regarding material behaviour, especially the fire performance of the materials used. This applies to many areas within a building, however, to its facade, rendering a lot of materials unsuitable for use in safety relevant areas.
The HI-MACS® Outdoor Range offers a choice of twelve attractive shades and, above all, maximum safety for the planner, the fabricator and the builder – last but not least for the occupants of the building.

Achieving the outstanding fire rating class B 1, HI-MACS® facade colour range passed all relevant tests, particularly fire rating tests, which are conducted by renowned and independent institutes in cooperation with German building authorities and their strict regulations.

HI-MACS® offers a 5 year warranty on UV resistance on colour and gloss difference for the facade colour range (shown below).
The warranty is applicable after the first installation and is only valid for the material; adhesive e.g. is excluded. The conditions for this warranty are based on practical experience and ongoing tests.

Best UV resistance of all solid surfaces.

Moreover, the entire outdoor range shows the best UV values of all solid surfaces. Six colours are rated with the UV classification Delta E3 ("negligible fading possible"), the other six colours are rated Delta E4 ("slight fading possible") during 5 years.

Low flammability.

Above all, it is the tailor-made FR quality that passed the fire classification according to EN 13501, B-s1-d0 (single burning test - SBI) successfully* which by the way, is the only solid surface available in the European market with such classification.

*tested with subconstruction and insulation.

Colours

Here are the twelve shades of the HI-MACS® Outdoor Range. Our applications engineers suggest using 12 mm strong HI-MACS® sheets for facade construction.

HI-MACS®

Diamond White
S034 [12 mm]

Alpine White
S28 [12 mm], ΔE3

Cream
S09 [12 mm], ΔE3

White Granite
G05 [12 mm], ΔE4

White Quartz
G04 [12 mm], ΔE4

Almond
S02 [12 mm], ΔE3

Arctic Granite
G34 [12 mm], ΔE3

Confetti Quartz
G41 [12 mm], ΔE4

Ivory Quartz
G30 [12 mm], ΔE4

Sea Oat Quartz
G38 [12 mm], ΔE3

Beach Sand
G48 [12 mm], ΔE3

Grey Sand
G02 [12 mm], ΔE4

Opal
S302 [12 mm], ΔE4

HI-MACS®-FR

Alpine White
S728 [12 mm], ΔE3

HOW HI-MACS® STANDS UP AGAINST ALL THE ELEMENTS:

Technical Properties

Specification		Result	Unit	Test methods
Flexural E-modulus	Ef	8900	MPa	DIN EN ISO 178
Flexural strength	σ fm	76,9	MPa	DIN EN ISO 178
Breaking elongation	Є fm	1,01	%	DIN EN ISO 178
Resistance		> 1 x 10^{12}	Ω	EN61340-5-1
				DIN IEC 61340-4-1
Diffusion resistance coefficient	μ	1807		DIN EN ISO 12572
Density		1,71	g/cm^3	ISO 1183
Heat conductance	λ10tr	0,636	W/mK	DIN EN 12664
Resistance to thermal expansion	R	0,048	m^2K/W	DIN EN 12664
Thermal expansion coefficient	α	0,048	mm/mK	prEN 14581
Linear expansion coefficient		max. 30 x 10^{-6}	m/°C	
Tensile resistance	σ fm	32,7	MPa	DIN EN 527
Water absorption		< 0,1	%	DIN EN 438 – part 12
SBI fire performance		B – d0 – s1		DIN 13501

Fire performance

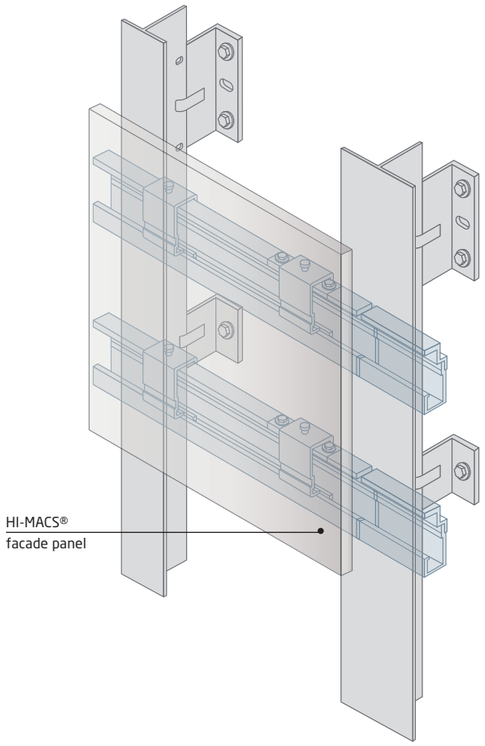
Product concerned	Test method	Results
HI-MACS® FR - 12mm	DIN EN 13501-1, tested with sub-construction and insulation	B-s1, d0
HI-MACS® FR - 12mm	NFP 92-501 1995	M1
HI-MACS® FR - 12mm	DIN 4102-1 EN 13501-1	B1 B-s1,d0
HI-MACS® FR - 9mm with back up	DIN 4102-1	B1
HI-MACS® FR - 9mm without back up		

THE APPROPRIATE TECHNOLOGY: HI-MACS® AS A VENTILATED RAINSCREEN FACADE.

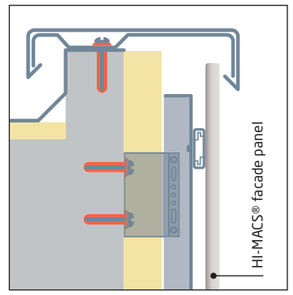
Cross section of a ventilated rainscreen.

If you would like to benefit from the wonderful design possibilities and functional advantages offered by HI-MACS® and use it as facade material, we suggest planning a ventilated rainscreen facade. This very common system separates the thermal-insulation and weather-protection functions. Here HI-MACS® benefits from its special mix of significant properties which render the material virtually predestined for outdoor application.

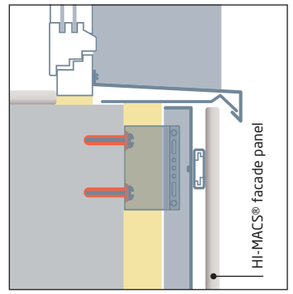
The subconstruction on the wall.
Through the way panels are anchored to the wall professionally, the cross-section below demonstrates the construction method of a ventilated rainscreen.



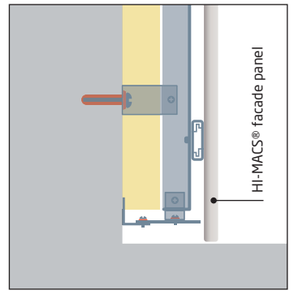
Simple flashing details.
HI-MACS® and the recommended subconstruction also allow the installation of roof and wall flashings or windowsills – easily and without any problems, just like the entire facade.



Attic flashing
(upper flashing)

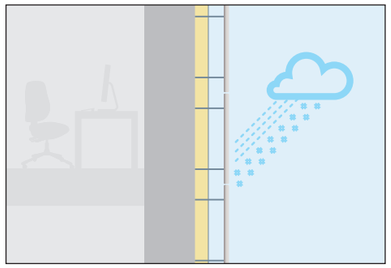


Windowsill

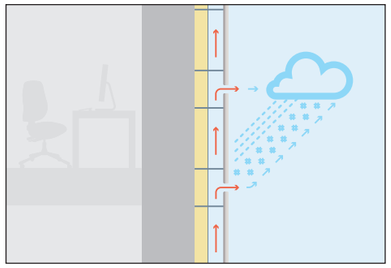


Base flashing
(lower flashing)

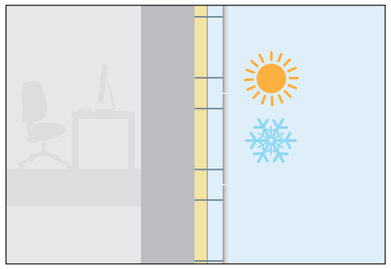
Perfect protection against all external influences. Thanks to the ventilated facade – and HI-MACS®.



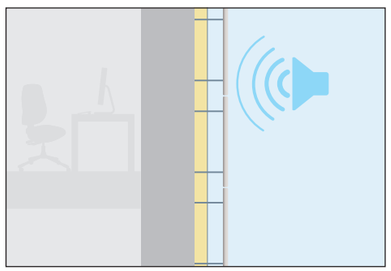
Perfect moisture resistance
HI-MACS® is highly resistant to moisture like rain, snow or condensation, thus providing excellent protection for the insulation layer behind the facade. Furthermore, any moisture is perfectly removed via a gap between the facade panel and the insulation material.



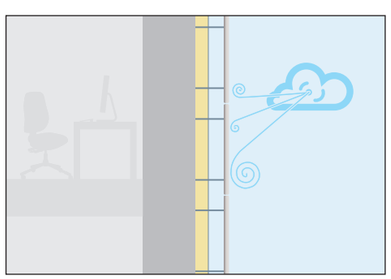
Perfect air circulation
In connection with the ventilated rainscreen technology, HI-MACS® ensures air circulation irrespective of low or high temperatures.This method removes condensation moisture and prevents damage to the insulation layer.



Perfect insulation properties
HI-MACS® withstands cold and heat equally. These insulation properties result in significant energy savings.



Perfect noise insulation
HI-MACS® facade materials provide optimal noise insulation thus reducing the noise level significantly.



Perfect resistance to wind pressure
With its overproportionally high flexural and axial rigidity, HI-MACS® offers excellent resistance to wind pressure.

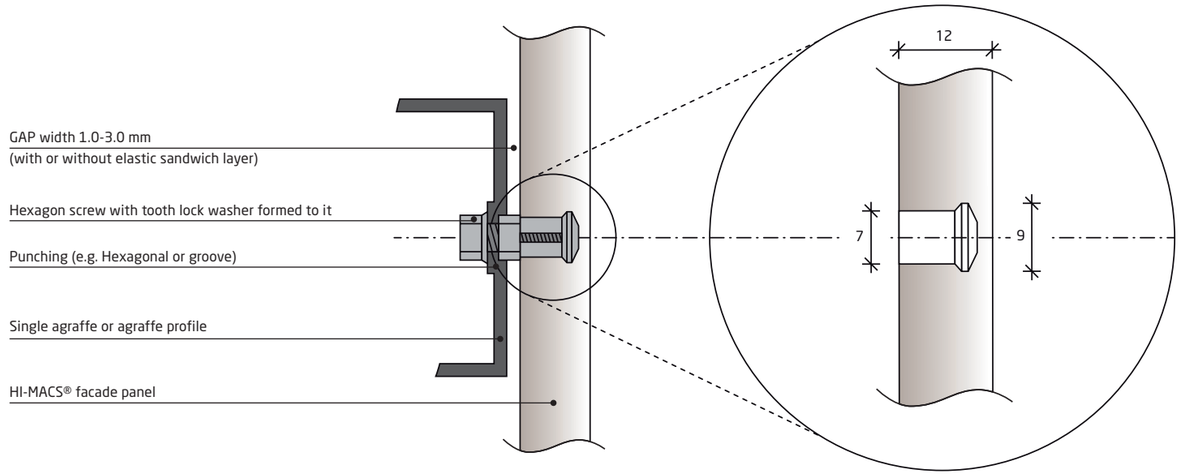
The optimal method of mounting HI-MACS® on walls.

Adjustable aluminium subconstructions are used for the professional mounting of HI-MACS® facade elements. LG Hausys suggests using proven high-quality products such as those offered by BWM installation system.

These elements are used to anchor HI-MACS® slabs on walls leaving a 20 mm gap between the slabs and the insulation material: a perfect space for the vital air circulation. The insulation layer itself is well kept in place between the aluminium sections and the wall. Depending on the state of the building, the subconstruction is aligned to the individual requirements determined by the architect.

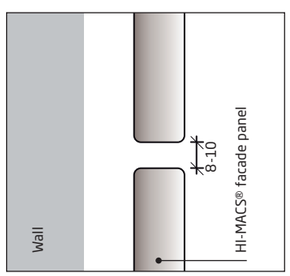
HI-MACS® panels are mounted – invisibly from the outside – to the aluminium substructure. We recommend using an invisible undercut anchor which is offered by Keil attachment technology.

Keil undercut anchor

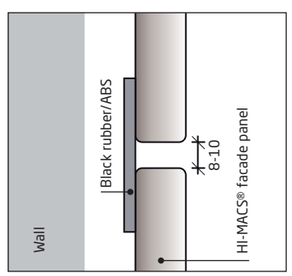


How to join the panels.

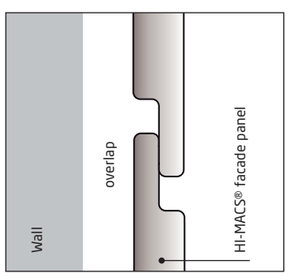
There are different ways of joining two HI-MACS® panels within the ventilated rainscreen. The methods shown here allow for expansion joints of at least 8 to 10 mm.



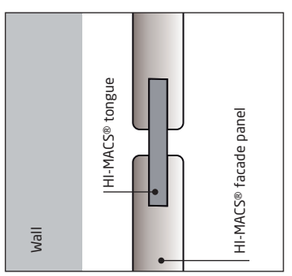
Open joint
without sealing on the reverse side



Open joint
with sealing on the reverse side
(rubber or ABS plastic)



Overlapping panels



Tongue and groove joints
(tongue element made from HI-MACS®)

ALL THIS PROCLAIMS HI-MACS® FOR THE OPEN AIR.

Now advantages that used to be available for indoor applications only, considerably enhance design possibilities for building exteriors. Thus, from a functional and esthetic point of view, HI-MACS® opens up entirely new perspectives for the creative design of high-quality facades.

WE WOULD BE PLEASED TO PROVIDE YOU WITH DETAILS AND MORE INFORMATION.

HI-MACS®. The New Generation.

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